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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ben Pontius

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10/06/2006

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EXAMINER

MAHMOUDI, HASSAN

ART UNIT

PAPER NUMBER

2165

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/519,695	PONTIUS, BEN	
	Examiner	Art Unit	
	Tony Mahmoudi	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. In response to communications filed on 10-July-2006, claim 4 is cancelled, claims 1, 3 and 5 are amended, and new claim 7 is added per applicant's request. Therefore, claims 1-3 and 5-7 are presently pending in the application, of which, claims 1, 3, and 5 are presented in independent form.

Claim Objections

2. Claim 1 is objected to for the following informalities:

Claim 1 improperly uses a singular verb with a plural object in line 5. This objection can be overcome by changing "that exactly matches" to --that exactly match--, in line 5.

3. Claims 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel claim 7, or amend it to place the claims in proper dependent form, or rewrite claim 7 in independent form.

The newly added dependent claim 7 states:

“The method of claim 1, wherein the step of adding transitions adds only those transitions that exactly match possible patterns that can start within the set of patterns to be matched.”

The above limitation already exists in lines 5-6 of independent claim 1 (as amended by the Applicant). Therefore, claim 7 is an improper dependent claim for failing to further limit the subject matter of a previous claim. Appropriate correction is required based on suggestions made above.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 5, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Hunter et al (U.S. Patent No. 5,606,690.)

As to claim 1, Hunter et al teaches a method (see Abstract) for creating a deterministic finite state automata (FSA) that match patterns in parallel (see column 3, lines 9-16; and see column 4, lines 31-36), comprising:

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creating states of the finite state automata from a set of patterns to be matched (see column 7, lines 27-53);

passing over the set of patterns a second time (see column 16, lines 8-25, where “passing over a second time” is read on “examined again”); and

adding transitions to the states (see column 4, lines 32-37) that exactly matches (see column 3, lines 9-16 for “finite deterministic automata to search only literally for exact matches”) all possible patterns that can start within the set of patterns to be matched (see column 7, lines 27-41.)

As to claim 3, Hunter et al teaches a method of creating a deterministic FSA (see column 3, lines 9-16) that uses array-based transitions for an alphabet of size N, comprising:

representing each state as an object containing an array of N pointers to possible successive states (see column 14, lines 41-49, and see column 23, lines 1-10); and

using a numeric value of each member of the alphabet as an offset into the array to point to a next state (see column 13, lines 11-22.)

As to claim 5, Hunter et al teaches a method for matching patterns in a deterministic FSA (see column 3, lines 9-16), comprising:

using a numeric value of less than a complete set of bits of an input as an offset into an array (see column 13, lines 11-22, thereby reducing a size of the array (see column 16, lines 8-14.)

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As to claim 7, Hunter et al teaches wherein the step of assign transitions adds only those transitions that exactly match (see column 3, lines 9-16 for “finite deterministic automata to search only literally for exact matches”) possible patterns that can start within the set of patterns to be matched (see column 7, lines 27-41.)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter et al (U.S. Patent No. 5,606,690) in view of Major et al (U.S. Patent No. 5,455,932.)

As to claim 2, Hunter et al teaches the method further comprising:

iterating through the states (see column 15, lines 10-38, where “iterating through the states” is read on “transition between state 400 and state 410”);

determining whether input causes a move to an initial state (see column 15, lines 39-60);
and

if the initial state has a different move on the input, changing a current state's transition
(see column 14, lines 50-58.)

Hunter et al does not teach the current state mirroring the initial state.

Major et al teaches a fault-tolerant backup system (see Abstract), wherein he teaches the current state mirroring the initial state (see column 4, line 63 through column 5, line 1, and see column 10, lines 45-48.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Hunter et al by the teaching of Major et al, because including the current state mirroring the initial state would enable the system to run on a duplicate of the initial state without actually switching states from current to the initial state.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter et al (U.S. Patent No. 5,606,690) in view of Allison et al (U.S. Patent No. 6,549,960 B1.)

As to claim 6, Hunter et al does not teach using a hash function for matching patterns composed of a 128 or 256 alphabet without overhead of larger arrays.

Allison et al teaches using a hash function for matching patterns composed of a 128 or 256-alphabet without overhead of larger arrays (see figure 13; see column 14, lines 35-44 and see column 19, lines 36-44.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Hunter et al by the teaching of Allison et al, because matching patterns composed of a 128 or 256 alphabet would result in faster pattern matching results.

Response to Arguments

9. Applicant's arguments filed on 10-July-2006 with respect to the rejected claims in view of the cited references have been fully considered but they are not deemed persuasive:

With respect to independent claims 1, 3, and 5, the Applicant argues that the instant application's "deterministic" FSA is not the same as the "non-deterministic" FSA solution provided by the Examiner's cited prior art, Hunter et al. The Examiner notes that the Applicant has only amended the pre-amble of the independent claims to add a "deterministic" FSA, without any indication of what such "deterministic" FSA will do (or what it is used for) in the independent claims. The pre-amble of the claims do not necessarily carry patentable weight in the eligibility determination of patentable subject matter, unless the limitations contained in the preamble are included (defined) in the steps or process of the claim, following the preamble.

Nevertheless, Hunter et al., in the background section of his invention references "deterministic FSA" for "searching exact matches" in an issued patent, with claimed priority of 1986.

Furthermore, the specification of the instant application, on page 5, teaches both "deterministic" and "non-deterministic" FSA and their differences. Yet, the preamble of the independent claims have been amended by the Applicant to positively recite "deterministic" FSA, without any changes reflecting this difference in the language of the claims.

Hunter et al., although focusing on non-deterministic FSA, also teaches both "deterministic" FSA in column 17, lines 16-18, as: **"Specifically, finite state deterministic automata and finite state non-deterministic automata are used to identify patterns in the**

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processing of character streams”, which satisfies the claim limitations of the instant application, as amended by the Applicant.

Applicant's arguments regarding the newly added dependent claim 7 are fully considered but are moot in view of the objection made to this claim in this Office Action for being an improper dependent of claim 1, for failing to further limit the parent claim.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

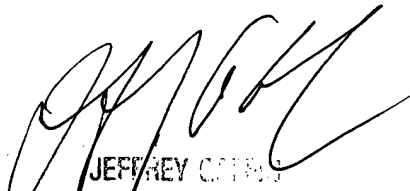
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11. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (571) 272-4078. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached at (571) 272-4146.

tm

September 19, 2006



JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100